

NanoPixx DMX-Controller

User Manual



DMX [®]
4
ALL

Description

The **NanoPixx DMX-Controller** is especially designed for the DMX-controlling of digital LED-Stripes or Pixel Stripes, whereby each LED is controllable individually.

By controlling with DMX, 170 Pixel (RGB) can be controlled individually.

So running lights, gradients up to rainbow effects can be generated.

The output is equipped for connecting several digital LED Stripes.
With the adjustable output protocol this controller is suitable universally.

The NanoPixx DMX-Controller supports pixel groups with an adjustable length.
Each pixel group behaves like a single pixel which will be controlled about 3 DMX-channels. So, even longer digital LED-Stripes with more than 170 pixel can be controlled.

Data Sheet

Power supply:	5V DC from connected digital LED-Stripe
DMX-IN:	up to 512 DMX channels
Output:	Digital controlling signal for up to 170 individual controllable RGB-Pixel/Pixel groups
Output protocol: (adjustable)	MagiarLED III flex, TM1804, TM1812, TM1829, WS2801, LPD8803, DycoLED, UCS1903, UCS9812, WS2811, WS2812, WS2812B, INK1002, INK1003, APA-101, APA-102, APA-104, LPD6803, LPD1886 8Bit, LPD1886 12Bit, UCS2912 RGBW
Color sequence:	adjustable
Pixel groups:	adjustable (1 – 127 Pixel)
Max. number pixel/pixel groups:	
Demo programs:	170 Pixel
DMX-Mode:	170 Pixel (RGB-Stripe) 512 Pixel (SingleColor-Stripe)
Dimensions:	Diameter: 19mm Length: ~25cm Length-adapter: ~5cm
Default-settings:	WS2811 / WS2812(B) / APA-104 / INK1002 / INK1003 Color sequence = R-G-B Pixel groups = 1

Connection



It is only allowed to run the **NanoPixx DMX-Controller** exclusively with digital LED-Stripes with 5V power supply!

The NanoPixx DMX-Controller uses for the connection to a DMX-signal a 3pin XLR-connector.

XLR Pin	Description
1	GND
2	DMX-
3	DMX+

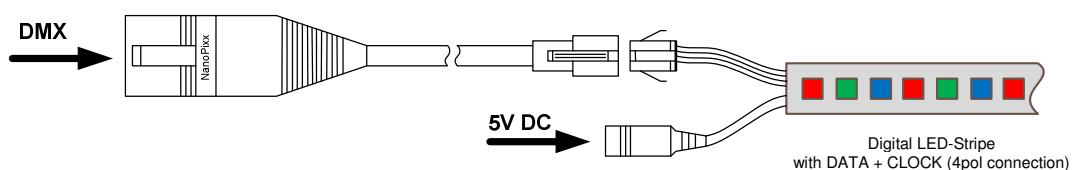
The controlling signal for the digital LED-stripe is lead out via a 4pin JST-SM connector.

JST-SM Pin	Description
1	Power supply 5V (red)
2	CLOCK (blue)
3	DATA (green)
4	GND (black)

The following presentations refer to the offered digital LED-Stripes from DMX4ALL. For other LED-Stripes the pin assignment can differ!

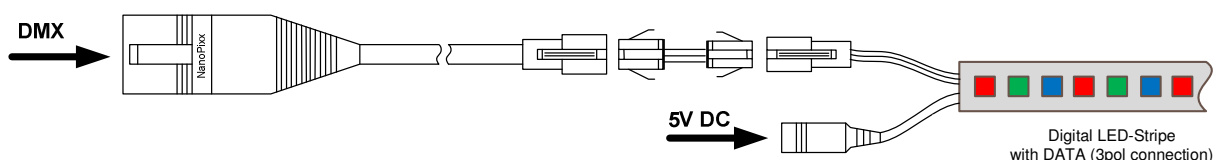
Connection for Stripes with two controlling signals (CLK+DATA)

For the connection of digital LED-Stripes with 4pin connections the attached adapter doesn't have to be used.



Connections for Stripes with one controlling signal (DATA)

For the connection of digital LED-Stripes with 3pin connections the attached adapter has to be used.



Settings

The **NanoPixx DMX-Controller** settings will be done via the DMX-values by starting the power supply.



To assume the settings after starting the power supply and to store the DMX-values must be adjusted exactly. A deviation of the values leads to not accepting the settings!

Please follow for adjusting the NanoPixx DMX-Controller the following steps:

- Connect the LED-Stripe, the power supply and the NanoPixx DMX-Controller
- Connect the DMX-signal with the NanoPixx DMX-Controller
- Adjust the DMX-values according to the following scale
- Start the LED-Stripes power supply
- Please wait ca. 10 seconds until the settings are stored
- Shut down the power supply

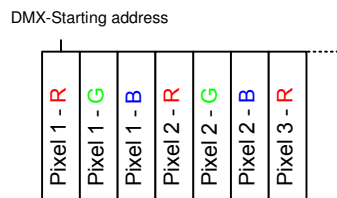
DMX-Channel	Value	Description
1	55	
2	77	
3	10 20 30 40 50 60 70 80 90 100 150 160 170 180 190	WS2811 / WS2812(B) / APA-104 / INK1002 / INK1003 TM1804 TM1812 TM1829 LPD1886 - 8Bit LPD1886 - 12Bit UCS1903 UCS9812 - 8Bit UCS9812 - 16Bit UCS2912 – RGBW* MagiarLED III flex LPD6803 / DycolLED / APA-101 LPD8806 WS2811 APA-102
4	10 20 30 40 50 60 70 80 90 100	R-G-B / RGBW* R-B-G G-R-B G-B-R B-R-G B-G-R Single Color WHITE Single Color RED Single Color GREEN Single Color BLUE
5	1-127	Pixel group length
6	22 222	Mode-Channel OFF Mode-Channel ON
7	0-255	DMX-Start L
8	0-255	DMX-Start H DMX-Startaddress = DMX-Start L + (DMX-Start H * 256) DMX-Startaddress must be located in the range 1-511

* - By using the RGBW LED-Stripes please note the chapter RGBW-LED-Stripes – Additional Settings

RGB-Pixel controlling

The **NanoPixx DMX-Controller** controls each RGB-Pixel with 3 DMX-Channels. Always one DMX-channel for red, green and blue is used.

Starting at the DMX-starting address the DMX-channels will be assigned automatically to the pixel:



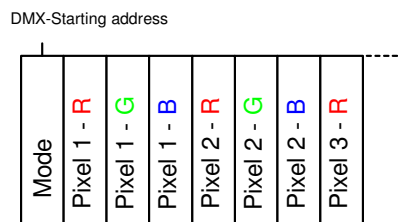
DMX MODE-Channel

An additional MODE-Channel can be activated to build pixel groups (pixel sections) and to call demo programs via DMX.



The MODE-Channel can be activated via the settings. Please take further details from the chapter *settings*.

With the activated MODE-Channel the first DMX-Channel determines the pixel sections length with the same color (DMX-value 1-127). Thereby the maximum length is 127 pixel. The following DMX-addresses are destined for the color settings:



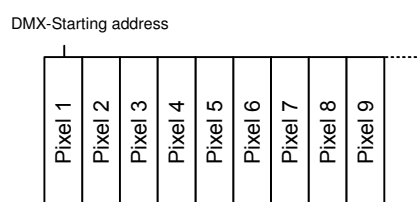
Channel	Function	Value	
1	Mode	0	Pixel section length = All Pixel
		1-127	DMX-Value = Length of a pixel section
		128-255	see demo programs via DMX
2	Color	0-255	Pixel 1 red
3		0-255	Pixel 1 green
4		0-255	Pixel 1 blue
...		...	... red/green/blue for each pixel

SingleColor-Pixel controlling

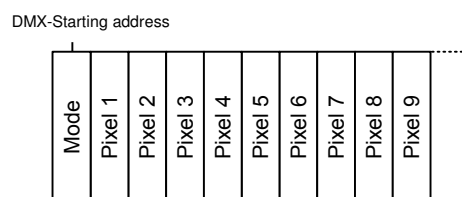
The **NanoPixx DMX-Controller** can control each pixel uni colored too, so that only 1 DMX-Channel is need for each pixel.

Thereby the control white, red, green or blue are available.

Starting by the DMX-starting address the DMX-channels will be assigned automatically to the pixel:



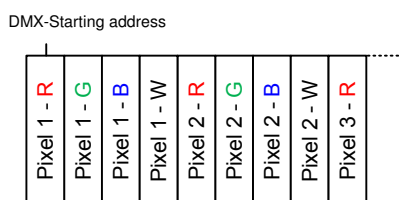
With the activated MODE-Channel the first DMX-Channel determines the pixel sections length with the same color (DMX-value 1-127). Thereby the maximum length is 127 pixel. The following DMX-addresses are destined for the color settings:



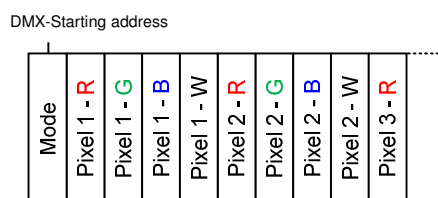
RGBW-Pixel controlling

The **NanoPixx DMX-Controller** controls each RGBW-Pixel with 4 DMX-channels. Always one DMX-Channel will be used for red, green, blue and white.

Starting by the DMX-starting address the DMX-Channels will be assigned automatically to the pixel:



With the activated MODE-Channel the first DMX-Channel determines the pixel sections length with the same color (DMX-value 1-127). Thereby the maximum length is 127 pixel. The following DMX-addresses are destined for the color settings:



Additional settings:

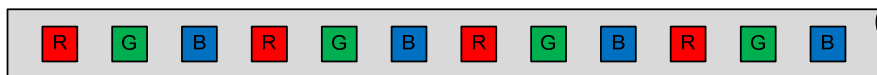
For the RGBW-control there are additional Offset-adjustments necessary. Because several stripe-types are available there must be 12 Offset-value specified according to the following scale:

DMX-Channel	Value	Description	Value for Art.: 52-0669	Value for Art.: 52-0670
10	0-11	Offset for Pixel 1 RED	0	0
11	0-11	Offset for Pixel 1 GREEN	1	1
12	0-11	Offset for Pixel 1 BLUE	2	2
13	0-11	Offset for Pixel 1 WHITE	9	3
14	0-11	Offset for Pixel 2 RED	3	4
15	0-11	Offset for Pixel 2 GREEN	4	5
16	0-11	Offset for Pixel 2 BLUE	5	6
17	0-11	Offset for Pixel 2 WHITE	10	7
18	0-11	Offset for Pixel 3 RED	6	8
19	0-11	Offset for Pixel 3 GREEN	7	9
20	0-11	Offset for Pixel 3 BLUE	8	10
21	0-11	Offset for Pixel 3 WHITE	11	11

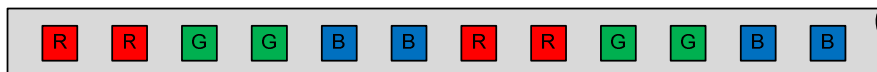
Pixel groups

The **NanoPixx DMX-Controller** supports pixel groups with an adjustable length of 1 pixel up to 127 pixel. Thereby each pixel behaves like a single pixel.

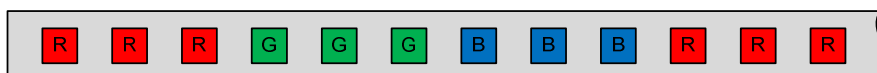
Pixel group length = 1



Pixel group length = 2



Pixel group length = 3



Please take the configuration informations for the pixel group length from the chapter *Settings*.

In accordance with the choosen LED-protocol a different number of pixel can be connected to the output (controlled pixel):

LED-Protocol	max. Pixel/Pixel group RGB	max. controlled Pixel Single Color	max. controlled Pixel
MagiarLED III	170	512	2048
Dyco LED / APA-101	170	512	4098
APA-102	170	512	2048
TM1804	170	512	683
TM1812	170	512	683
TM1829	170	512	683
WS2801	170	512	2733
LPD8803	170	512	2733
LPD6803	170	512	4098
UCS1903	170	341	341
WS2811 / WS2812(B) / APA-104	170	512	683
UCS9812 (8Bit Ctrl.)	170	390	390
UCS9812 (16Bit Ctrl.)	170	390	390
LPD1886 8Bit	170	512	911
LPD1886 12Bit	170	512	683
UCS2912 - RGBW	128		512

Demo programs



For this function the MODE-Channel must be activated.
Please take further details from chapter *Settings*.

The predefined demo programs in the **NanoPixx DMX-Controller** will be called via the DMX-channel 1 (MODE-channel) from the DMX-value 128. The speed can be adjusted via DMX-channel 3.

Channel	Function	Value	
1	Mode	0-127	See Pixel control via DMX
		128-135	8 color mix
		136-143	R-G-B
		144-151	RGB color star
		152-165	Single color star
		166-177	Wave 1
		178-189	Wave 2
		190-203	Snake
		204-217	Fecher
		218-231	Running Point 1
		232-239	Running point 2
		240-246	Blink
		247-255	Rainbow
2	Color	0-31	White
		32-63	Red
		64-95	Green
		96-127	Blue
		128-159	Yellow
		160-191	Pink
3		192-223	Cyan
		224-255	(Out)
	Speed	0-255	Fast → Slow

Equipment

Digital LED stripes / Pixel stripes

- MagiarLED III flex Stripe 72
- MagiarLED III flex Stripe 144
- Digital LED Stripe APA-104
- Digital LED Stripe WS2812
- Digital LED Stripe LPD1886



Power supply 5 V / 6A



Risk-Notes

You purchased a technical product. Conformable to the best available technology the following risks should not be excluded:

Failure risk: The device can drop out partially or completely at any time without warning. To reduce the probability of a failure a redundant system structure is necessary.

Initiation risk: For the installation of the board, the board must be connected and adjusted to foreign components according to the device paperwork. This work can only be done by qualified personnel, which read the full device paperwork and understand it.

Operating risk: The Change or the operation under special conditions of the installed systems/components could as well as hidden defects cause to breakdown within the running time.

Misusage risk: Any nonstandard use could cause incalculable risks and is not allowed.

Warning: It is not allowed to use the device in an operation, where the safety of persons depend on this device.





DMX4ALL GmbH
Reiterweg 2A
D-44869 Bochum
Germany

Last change: 23.05.2015

© Copyright 2015 DMX4ALL GmbH

All rights reserved. No part of this manual may be reproduced in any form (photocopy, pressure, microfilm or in another procedure) without written permission or processed, multiplied or spread using electronic systems.

All information contained in this manual was arranged with the greatest care and after the best knowledge. Nevertheless errors are to be excluded not completely. For this reason I see myself compelled to point out that I can take over neither a warranty nor the legal responsibility or any adhesion for consequences, which decrease/go back to incorrect data. This document does not contain assured characteristics. The guidance and the characteristics can be changed at any time and without previous announcement.